

Transvaginal Application of a Laparoscopic Bipolar Cutting Forceps to Assist Vaginal Hysterectomy in Extremely Obese Endometrial Cancer Patients

James Fanning, DO, Rod Hojat, MD, Jil Johnson, DO, Bradford Fenton, MD, PhD

ABSTRACT

Introduction: The purpose of this report is to evaluate our experience with transvaginal application of a laparoscopic bipolar cutting forceps to assist vaginal hysterectomy in extremely obese women with endometrial cancer in whom obesity precluded LAVH/BSO and lymphadenectomy and vaginal obesity limited visualization and exposure.

Materials and Methods: We performed a retrospective review and identified 6 consecutive cases. No cases were excluded. A laparoscopic 33-cm Plasma Kinetic (PK) cutting forceps with a 5-mm diameter was applied transvaginally to coagulate and cut the uterosacral and cardinal ligaments, uterine vasculature, and ovarian ligaments. The uterus was delivered vaginally. Staging lymphadenectomy was not performed.

Results: Median age was 51 years, median weight was 405 lbs, and median BMI was 66 kg/m². Five of 6 cases were successfully performed vaginally (83%). Median operative time was 1 hour 10 minutes, median blood loss was 500 mL, and pain was only discomforting. All patients were discharged the day after surgery. There were no complications. At median follow-up of 1 year, all patients were alive with no evidence of disease.

Conclusion: It is our opinion that the transvaginal application of a laparoscopic bipolar cutting forceps can successfully assist vaginal hysterectomy in extremely obese endometrial cancer patients who cannot tolerate LAVH/BSO and lymphadenectomy and vaginal obesity limits visualization and exposure.

Key Words: Laparoscopic bipolar cutting forceps; Hysterectomy in the obese.

INTRODUCTION

Advanced laparoscopic procedures are increasingly being utilized as an alternative to laparotomy in gynecologic surgery.^{1,2} A metaanalysis of 27 prospective randomized trials has proven the benefits of laparoscopic-assisted vaginal hysterectomy (LAVH) compared with abdominal hysterectomy (AH): decreased pain, decreased surgical-site infections (decreased relative risk 80%), decreased hospital stay (2 days less), quicker return to activity (2 weeks sooner), and fewer postoperative adhesions (decreased 60%).³ In a cost-effectiveness analysis of LAVH versus AH, there was no significant increased cost with LAVH.⁴

Advanced laparoscopic procedures are also increasingly being utilized as an alternative for laparotomy in gynecologic oncology surgery. LAVH/BSO with lymphadenectomy has become a standard treatment for endometrial cancer.⁵⁻⁸ In some extremely obese patients, LAVH/BSO and lymphadenectomy cannot be safely performed because of potential anesthetic complications secondary to a decreased tolerance to the Trendelenburg position, and vaginal obesity limits visualization and exposure.

We have recently published a case report⁹ on the transvaginal application of a laparoscopic-pulsed bipolar-energy instrument used in completing a difficult vaginal hysterectomy. Laparoscopic instruments are inherently thin and long, which is desirable when a difficult vaginal hysterectomy is being performed. Since the report of this case, we have used the laparoscopic cutting forceps transvaginally to assist vaginal hysterectomy in extremely obese women with endometrial cancer in whom obesity precluded LAVH/BSO and lymphadenectomy and vaginal obesity limited visualization and exposure.

The purpose of this report is to evaluate our experience with the transvaginal application of a laparoscopic cutting forceps for vaginal hysterectomy in extremely obese women with endometrial cancer.

MATERIALS AND METHODS

We performed a retrospective review of the senior author's surgical case log and identified 6 consecutive cases in which the laparoscopic bipolar cutting forceps was

Address correspondence to: James Fanning, DO, Professor and Chief, Division of Gynecologic Oncology, Pennsylvania State University, Milton S. Hershey Medical Center, 500 University Dr, Hershey, PA 17033, USA. Telephone: (717) 531-8144, Fax: (717) 531-0007, E-mail: JFanning1@HMC.PSU.edu

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used transvaginally to assist vaginal hysterectomies in extremely obese women with endometrial cancer. No cases were excluded. These 6 cases occurred over a 2-year period and included all patients in whom obesity precluded LAVH/BSO and lymphadenectomy, and vaginal obesity limited visualization and exposure. Following intubation, Trendelenburg positioning was attempted, and the anesthesiologist determined that an adequate Trendelenburg position could not be safely maintained. IRB approval was obtained.

All patients received a preoperative bowel prep with 45 mL of fleets phosphosoda orally, a single dose of preoperative prophylactic antibiotics, and external pneumatic cuffs.

All procedures were performed with the patient under general endotracheal anesthesia. An orogastric tube was inserted and removed at the end of surgery. The patient was positioned in the dorsolithotomy position with legs in stirrups. The cervicovaginal junction was opened with monopolar electrosurgery. Blunt dissection of the anterior and posterior cul-de-sacs was performed. With the bladder and rectum retracted, a laparoscopic 33-cm long PlasmaKinetic (PK) cutting forceps 5-mm in diameter (Gyrus ACMI, Southborough, MA) was applied to the uterosacral ligament, coagulated, and cut (Figure 1). After several applications on the uterosacral and cardinal ligaments, there was adequate dissent to enter the anterior and posterior cul-de-sac. The PK cutting forceps was used to transect the uterine vasculature, fallopian tubes, and ovarian ligaments, and the uterus was delivered vaginally. The ovaries and fallopian tubes were then grasped, and the infundibulopelvic ligaments were also coagulated with the PK cutting forceps. Uterosacral vaginal fixation stitches were placed. Reperitonealization was performed when possible. The vagina was closed with interrupted O polyglycolic acid sutures and packed. Staging lymphadenectomy was not performed.

All patients were placed on a general diet and given bowel simulation with 30 mL of milk of magnesia and discharged the day following surgery. Patients were followed up at 1 week, 4 weeks, and every 3 months for 1 year.

RESULTS

Median age was 51 years (range, 45 to 52), median weight was 405 lbs (range, 370 to 452), and median BMI was 66 kg/m² (range, 55-77) (Table 1). All patients were Caucasian and had multiple medical comorbidities. Fifty percent

of patients had previous pelvic surgery including cesarean delivery.

Five of 6 cases were successfully performed vaginally (83%). Median operative time was 1 hour 10 minutes (range, 1 hr 9 min to 1 hr 35 min). Median blood loss was 500 mL (range, 400 to 700 mL). There were no intraoperative complications. Median Visual Analog Scoring (VAS) system¹⁰ on the day following surgery was 4-discomforting (range, 3 to 4). All patients were discharged on the day after surgery. No patient developed a postoperative complication.

Uterine stage was as follows: 1 patient -1AG1, 3 patients -1BG1, 1 patient -1BG2, and 1 patient -1CG1. No patient received adjuvant postoperative treatment. At median follow-up of one year, all patients were alive with no evidence of disease.

The single unsuccessful case was due to a 10-cm anterior vaginal leiomyoma that precluded entry into the anterior cul-de-sac. Surgery was completed through a Maylard laparotomy. Operative time was 3 hours and 45 minutes, blood loss was 800 mL, VAS was 6-distressing, and hospital stay was 2 days.

DISCUSSION

We have previously reported on the advantages of LAVH^{1,2,4} and surgical staging of endometrial cancer,¹¹⁻¹⁵ and thus believe that the optimum surgical treatment for women with endometrial cancer is LAVH/BSO and lymphadenectomy. In some extremely obese patients, LAVH/BSO and lymphadenectomy cannot be safely performed because of the increased risk of anesthetic complications. The Trendelenburg position in extremely obese patients undergoing laparoscopy can result in excessive peak airway pressure and pulmonary barotrauma.¹⁶

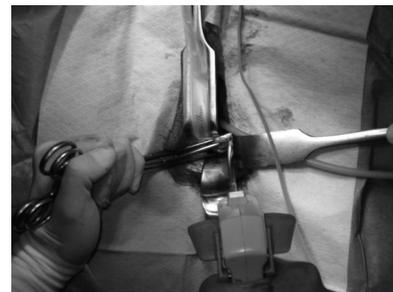


Figure 1. Vaginal application of a laparoscopic PlasmaKinetic (PK) cutting forceps to resect uterosacral ligaments.

Table 1.
Patient and Surgical Characteristics

Characteristic	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6†
Age	52	51	45	52	49	52
Weight (lbs)	385	370	450	405	420	452
BMI* (kg/m ²)	64	55	77	65	66	73
Medical Comorbidity	CAD; HTN; DM; PE; SA*	HTN; COPD; SA*	HTN; DM; SA*	HTN; DM; SA*	HTN; DM; SA; COPD*	HTN; DM; SA*
Pelvic/Abdominal Surgery	No	Yes	Yes	No	No	Yes
Operative Time	1:09	1:10	1:35	1:10	1:21	3:45
Blood Loss (mL)	700	400	500	500	600	800
VAS*	3	4	4	3	4	6
Length of Stay (Days)	1	1	1	1	1	2
Uterine Stage	IBGI	IBG2	IBGI	LAGI	IBGI	ICGI

BMI=body mass index; VAS=visual analog score; CAD= coronary artery disease; HTN= hypertension; DM=diabetes mellitus; SA= sleep apnea.

†Patient 6 represents an unsuccessful case.

The Trendelenburg position must then be discontinued, resulting in inadequate pelvic exposure. Several recent studies have evaluated laparoscopic surgery for obese endometrial cancer patients.⁵⁻⁸ However, the median BMI in these studies (30,⁵ 35,⁶ 35,⁷ 41⁸ kg/m²) is approximately one-half of our BMI of 66 kg/m².

In some extremely obese patients, vaginal hysterectomy is difficult because vaginal obesity causes sidewall collapse that limits visualization and exposure, which precludes the use of the conventional clamp-suture technique. Use of the long, thin (5 mm) PK coagulator allows adequate visualization of the uterine pedicles. The PK system uses pulsed bipolar energy for coagulation, measuring, and remeasuring the tissue impedance or resistance during coagulation to assure complete coagulation and hemostasis without excessive cautery effect or undesired spread to adjacent tissues or structures. Although the use of vaginal electrosurgical bipolar technology has been reported,¹⁷ these vaginal instruments are too bulky and short for extremely obese endometrial cancer patients.

Extremely obese endometrial cancer patients could be treated via laparotomy. However, operative and postoperative complications can be severe.⁸ Primary teletherapy could also be used, but complications can be significant, and the cure rate is decreased.¹⁸

CONCLUSION

We report on the successful use of transvaginal application of a laparoscopic bipolar cutting forceps to assist vaginal hysterectomy in extremely obese endometrial cancer patients. Five of 6 cases were successfully performed vaginally (83%). Median operative time was 1 hour 10 minutes, median blood loss was 500 mL, pain was only discomforting, all patients were discharged the day after surgery, there were no postoperative complications, and all patients are alive and free of disease. It is our opinion that transvaginal application of a laparoscopic bipolar cutting forceps can successfully assist vaginal hysterectomy in extremely obese endometrial cancer patients in whom LAVH/BSO and lymphadenectomy cannot be safely performed, and vaginal obesity limits visualization and exposure. It must be emphasized that this is a challenging surgical procedure. All surgeries were performed by a senior gynecologic oncologist with extensive experience in radical laparoscopic and vaginal surgery. Also, 2 gynecologic residents assisted in all cases. If these surgeries were elective, rather than oncologic, we would recommend weight loss prior to surgery.

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